

*S. J. Little*  
*CP 336*  
*3-21-91*  
*#4/Przy*  
*Out*



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: David T. Green      Group: Art Unit 336  
Serial No: 07/593,676      Docket: 1168  
Filed: October 5, 1990      Dated: March 12, 1991  
For: SAFETY TROCAR

*Done*  
*3/20/91*

Commissioner of Patents  
and Trademarks  
Washington, D.C. 20231

RECEIVED  
MAR 20 91  
GROUP 330

INFORMATION DISCLOSURE STATEMENT

Sir:

It is respectfully requested that the prior disclosures discussed below (copies enclosed) and cited in annexed forms PTO-1449 be considered by the Examiner in connection with the above-identified patent application and that such art be made of record in said application.

This submission is believed to be fully in compliance with 37 C.F.R. §§1.56, 1.97 and 1.98.

No representation is made or intended that a search of the prior art has been made or that no more relevant disclosures than those listed herein are available.

U.S. Patents

<u>Patent No.</u>	<u>Issue Date</u>	<u>Patentee</u>
1,213,001	January 16, 1917	Philips
2,623,521	December 30, 1952	Shaw

U.S. Patents (continued)

<u>Patent No.</u>	<u>Issue Date</u>	<u>Patentee</u>
3,030,959	April 24, 1962	Grunert
3,643,649	February 22, 1972	Amato
3,657,812	April 25, 1972	Lee
3,882,849	March 25, 1974	Jamshidi
4,018,228	February 24, 1975	Goosen
4,210,146	July 2, 1980	Banko
4,220,155	September 2, 1980	Kimberling, et al.
4,299,230	November 10, 1981	Kubota
4,356,826	November 2, 1982	Kubota
4,375,815	March 8, 1983	Burns
4,393,587	July 19, 1983	Kloosterman
4,414,974	November 15, 1983	Dotson, et al.
4,499,898	February 19, 1985	Knepshield, et al.
4,535,773	August 20, 1985	Yoon
4,556,059	December 3, 1985	Adamson, Jr.
4,559,041	December 17, 1985	Razi
4,601,710	July 22, 1986	Moll
4,637,393	January 20, 1987	Ray
4,654,030	March 31, 1987	Moll, et al.
4,723,545	February 9, 1988	Nixon, et al.
4,730,613	March 15, 1988	Gordy
4,733,662	March 29, 1988	DeSatnick, et al.
4,813,940	March 21, 1989	Parry

Foreign Publications

German 836392

Russian 344853

Russian 537677

Russian 921554

EPO Publication 350 291

Other Publication

F. S. Zubairov - "Needle for the Puncture and Lavage of the Abdominal Cavity" (Russian with English translation).

### Discussion

Philips '001 relates to a combined trocar/cannula assembly which includes a curette 26 slidably received within the cannula. Finger piece 30 controls distal movement of the curette and permits curette 26 to be advanced to a position shielding the trocar (see Fig. 3).

Shaw '521 discloses a needle which includes a stylet having a rounded distal end that is distally biased within a hollow needle by a compression spring. An indicator extends through the needle housing to signal the stylet position. When pressed against a body wall, the stylet retracts within the hollow needle, springing forward once the hollow needle enters the pleural cavity.

Grunert '959 shows a blood sampling lancet in which a press sleeve 23 may be displaced proximally to a position partially within head 22 (of cylindrical housing 1) by pressing against tissue, thereby releasing spring-loaded needle 12 for distal movement. Needle 12 advances beyond sleeve 23 to puncture tissue and then immediately retracts within sleeve 23 under action of return spring 5.

Amato '649 relates to a powered tracheotome in which a blade is advanced distally beyond an outer sleeve and, thereafter, a staple is formed to maintain the trachea opening.

Lee '812 relates to a "pencil-type" tool holder in which a tool 16 is spring biased to a proximal or shielded position within barrel 11. A latch mechanism 32 which is transverse to barrel 11 controls the extended/retracted position of tool 16.

Jamshidi '849 discloses a biopsy device in which a plunger 12 is slidably received within a hollow needle 15 to provide a variably sized chamber for tissue capture.

Goosen '228 relates to a surgical punch in which a rod 20 having a blade 26 attached thereto is spring biased distally to an exposed position beyond sleeve 11. Handle 21 allows blade 26 to be withdrawn by the surgeon into sleeve 11, thereby shearing a circular plug from the aortic wall.

Banko '146 discloses a tissue cutting device in which a blade 38 is reciprocally movable past an opening 50. Movement of blade 38 is powered by motor 14.

Kimberling '155 relates to a surgical instrument which includes an inner tube 14 which forms a trocar tip 38. Tip 38 is advanced beyond outer tube 12 by compressing handle elements 40, 44, and retracted into outer tube 12 by cessation of handle compression under the action of spring 30.

Kubota '230 and '826 relate to stabbing apparatus in which pressure sensors on or adjacent the cutting tip signal depth of penetration.

Burns '815 relates to a lancet assembly in which point 19 is exposed from a housing by moving sleeve 14 distally (against the bias of spring 21). Point 19 is automatically retracted into the housing under the bias of spring 21 when feet 21 are disengaged from flange 20.

Kloosterman '587 discloses a spring shielded knife assembly in which slide member 26 is biased distally from outer shell 36 to cover knife blade 12. When pressed against a material surface 58, slide member 26 reciprocates to a position within outer shell 36 to expose blade 12. Blade 12 is immediately shielded by slide member 26 when the counterforce exerted by material 58 is removed.

Dotson '974 discloses a microsurgical blade which may be exposed for use by retracting shroud 18.

Knepshield '898 shows a blade 50 within blade holder 60 biased rearwardly by spring 72. Blade 50 is controllably advanced by rotation of adjustment knob 20. Calibration markings 30 are provided to indicate the axial position of body 10.

Yoon '773 and its pertinence to the present invention are discussed in the Background of the Invention.

Adamson, Jr. '059 provides an injector tube having a beveled cutting edge 15 which is propelled by spring 16 into the trachea through actuation of a trigger mechanism.

Razi '041 relates to a surgical device having a pistol handle for introducing a cannula into a blood vessel. A stylet 43 is telescopically advanced from housing 39 by actuating trigger 46 and withdrawn within housing 39 by further actuation of trigger 46.

Moll '710 and its relevance to the present invention are discussed in the Background of the Invention.

Ray '393 discloses a reciprocal knife 1 which is movable with respect to a chamber (see knife guard 10) by drive means. The device includes electrically energized comparator means for controlling the depth of penetration.

Moll '030 discloses a safety trocar having a spring-loaded tubular shield 19 having a triangular opening and a locking mechanism associated with the flap valve 82. The operation of the spring-loaded shield is similar to the shield operation disclosed in Moll '710 which is discussed in the Background of the Invention.

Nixon '545 relates to a power assisted arthroscopic device which includes a retractable/extendable shroud to cover the cutting blade which is controlled by push button 112.

Gordy '613 relates to a surgical scalpel 26 which is extendable from a barrel nose 20 by rotating movable barrel 30 relative to fixed barrel 28.

DeSatnick '662 describes a gripping and cutting instrument in which a cutting blade and a gripping blade are together retracted into the sheath through manipulation of a handle slider.

Parry '940 discloses an injection device wherein a sleeve 1 which is distally biased by spring 16 and is retractable to expose a needle 9. A retaining means is also disclosed which prevents needle 9 from being exposed unless and until the retaining means is released.

German '392 provides a medical puncture device including a movably mounted bolt 7 within needle 1. When pressed against tissue, bolt reciprocates proximally against the bias of spring 4 to close an electrical circuit, thereby sending a signal to the device operator.

Russian '853 describes a puncture biopsy device which includes a feeding spring 10 and a retraction spring 12.

Russian '677 relates to a trocar in which a tip 10 is mounted to a rod 2 that is positioned within hollow stylet 1 and distally biased by spring 3. When pressed against tissue, tip 10 and rod 2 reciprocate to complete an electrical circuit and send a signal to the operator.

Russian '554 describes a safety trocar having a spring-operated sleeve 2 that automatically covers stylet 1 upon entering a body cavity.

EPO '291 describes various safety trocar embodiments. In a first embodiment, cannula 10 is distally biased by spring 18 to shield obturator point 28 (see Figs. 1-4). Further embodiments relate to safety shield configurations.

The Zubairov publication describes a puncture needle in which a hollow puncture needle 2 is distally biased by spring 6 to shield stylet needle 1.

The Examiner's independent consideration of the documents identified above is respectfully requested. The Examiner is also requested to initial the enclosed PTO-1449 forms to evidence such consideration.

Respectfully Submitted,



Basam E. Nabulsi  
Reg. No. 31,645  
Attorney for Applicants

United States Surgical Corporation  
150 Glover Avenue  
Norwalk, CT 06856  
(203) 845-1000

I hereby certify that this correspondence  
is being deposited with the U.S. Postal  
Service as first class mail in an envelope  
addressed to: Commissioner of Patents  
and Trademarks Washington, D.C.  
20231 on March 14, 1991

Joan Simmons 3/14/91  
Signature Date